

# Spontaneous Fundal Uterine Rupture in the Third Trimester of Pregnancy: A Rare Obstetric Emergency and Literature Review

\*A. OUARAB, A. SEBTI, N. DOUZI, M.I. BENDAHHOU, N. MAMOUNI, S.ERRARHAY, C. BOUCHIKHI, A.BANANI

(\*)Service de gynécologie obstétrique I CHU Hassan II, Faculté de médecine, de pharmacie et de médecine dentaire, université sidi Mohammed Ben Abdellah, FES

**Abstract :** *Background* Uterine rupture is a life-threatening obstetric complication associated with significant maternal and perinatal morbidity and mortality. It most commonly occurs in women with a previous cesarean scar and usually involves the lower uterine segment. Fundal uterine rupture is exceedingly rare, particularly in the absence of a uterine scar, and poses a major diagnostic challenge because of its atypical presentation. **Case Presentation** We report the case of a 33 year old gravida 2 para 1 woman at 35 weeks of gestation who presented with sudden-onset severe abdominal pain associated with signs of maternal hemodynamic instability and acute fetal distress. Emergency laparotomy revealed a complete fundal uterine rupture with hemoperitoneum. A live fetus was delivered by cesarean section. Surgical repair of the uterine defect was successfully performed. The postoperative course was favorable for the mother, while neonatal outcome depended on the duration of fetal compromise. **Conclusion** Fundal uterine rupture is an uncommon but catastrophic obstetric emergency. Prompt recognition and immediate surgical intervention are essential to improve maternal and fetal outcomes. Obstetricians should maintain a high index of suspicion when confronted with acute abdominal pain during pregnancy, even in women without classical risk factors.

**Keywords:** Uterine rupture; Fundal rupture; Pregnancy; Obstetric emergency; Hemoperitoneum; Maternal morbidity.

## Introduction :

Uterine rupture is defined as a complete disruption of all layers of the uterine wall, including the serosa, resulting in communication between the uterine cavity and the peritoneal cavity. It remains one of the most severe obstetric emergencies and is associated with substantial maternal hemorrhage, hysterectomy, fetal hypoxia, and perinatal death. The reported incidence of uterine rupture varies worldwide and ranges from 0.03% to 0.8%, depending on the population studied and the prevalence of previous cesarean delivery. Most ruptures occur at the site of a pre-existing uterine scar, particularly following cesarean section.

Fundal uterine rupture represents a particularly rare form of uterine rupture. It may occur in association with congenital uterine anomalies, placenta accreta spectrum disorders, grand multiparity, uterine trauma, excessive use of uterotonic agents, previous myomectomy, or, exceptionally, in an unscarred uterus.

The rarity of this condition and its nonspecific clinical manifestations frequently delay diagnosis. We report a case of spontaneous fundal uterine rupture diagnosed during emergency laparotomy and review the current literature regarding its diagnosis and management.

## Case Presentation :

A 33-year-old woman, gravida 2 para 1, at 35 weeks of gestation, was admitted to the emergency department because of sudden severe abdominal pain.

Her obstetric history included (describe previous cesarean section, myomectomy, curettage, multiparity, or absence of risk factors).

The pregnancy had been uneventful until the onset of symptoms.

## Clinical Examination

Upon admission, the patient complained of diffuse abdominal pain of sudden onset associated with weakness and dizziness. Vital signs revealed:

- Blood pressure: 85/50mmHg
- Heart rate: 125 beats/min
- Respiratory rate: 28 breaths/min
- Temperature: 36.7°C

Physical examination demonstrated generalized abdominal tenderness and guarding.

Fetal monitoring revealed severe fetal bradycardia (or absent fetal heart activity according to your case).

### Investigations

Ultrasound examination showed:

- Intrauterine pregnancy of 35 weeks
- Reduced fetal heart rate
- Significant intraperitoneal free fluid suggestive of hemoperitoneum

Laboratory investigations demonstrated:

- Hemoglobin: 8.6 g/dL

Given the suspicion of intra-abdominal hemorrhage and fetal compromise, emergency surgical exploration was undertaken.

### Surgical Findings

Emergency laparotomy revealed approximately 800 mL of hemoperitoneum.

A complete rupture involving the uterine fundus measuring approximately 10 cm was identified. Fetal membranes and/or fetal parts were partially extruded through the rupture site.

The fetus was delivered immediately via laparotomy. Examination of the uterus confirmed a fundal defect with active bleeding.



Figure 1 : Intraoperative image showing a fundal uterine rupture



Figure 2. Intraoperative appearance following two-layer closure of the fundal uterine rupture with satisfactory hemostasis

### **Management**

After fetal extraction and placental delivery, surgical repair of the uterine rupture was performed using a two-layer absorbable suture technique.

Hemostasis was secured, and blood transfusion was administered as required.

Hysterectomy was not necessary because uterine preservation was feasible.

### **Outcome and Follow-Up**

The patient was transferred to the intensive care unit for close monitoring.

Postoperative recovery was uneventful. Hemoglobin levels stabilized after transfusion, and the patient was discharged on postoperative day 6.

She was counseled regarding the high risk of recurrence in future pregnancies and the need for elective cesarean delivery before labor onset.

### **Discussion :**

Fundal uterine rupture is a rare obstetric event accounting for only a small proportion of all uterine ruptures. Unlike lower-segment ruptures associated with cesarean scars, fundal ruptures often occur in unusual clinical contexts and may be associated with more severe hemorrhage because of the rich vascularization of the uterine fundus.

Several risk factors have been reported:

- Previous fundal uterine surgery;
- Myomectomy entering the uterine cavity;
- Congenital uterine malformations;
- Placenta percreta;
- Grand multiparity;
- Excessive oxytocin or prostaglandin use;
- Instrumental uterine trauma;
- Previous uterine perforation.

However, spontaneous rupture of an apparently normal uterus has also been described.

Clinical presentation is highly variable. The most common symptoms include:

- Sudden abdominal pain;
- Vaginal bleeding;
- Maternal shock;
- Cessation of uterine contractions;
- Abnormal fetal heart rate patterns.

Because these signs are nonspecific, diagnosis is often made intraoperatively.

Ultrasound may demonstrate hemoperitoneum, fetal distress, extrauterine fetal parts, or disruption of the uterine wall.

Nevertheless, imaging should not delay surgical intervention when uterine rupture is suspected.

Management requires immediate laparotomy. Depending on the extent of the rupture, the patient's hemodynamic status, and future fertility wishes, treatment may consist of either uterine repair or hysterectomy.

Maternal survival has improved considerably with modern surgical and anesthetic techniques. However, perinatal mortality remains high and is strongly related to the interval between rupture and fetal delivery.

The present case highlights the importance of maintaining a high level of clinical suspicion in pregnant women presenting with acute abdominal pain and fetal compromise, even in the absence of classical risk factors.

### **Conclusion :**

Fundal uterine rupture is an exceptionally rare but potentially catastrophic obstetric emergency. Early recognition, rapid multidisciplinary management, and immediate surgical intervention are crucial for reducing maternal and fetal morbidity and mortality.

Obstetricians should consider this diagnosis whenever unexplained abdominal pain, hemoperitoneum, or fetal distress occurs during pregnancy, regardless of the presence or absence of a uterine scar.

### **Learning Points :**

- Fundal uterine rupture is considerably rarer than lower-segment rupture.
- Clinical presentation may be atypical and misleading.
- Fetal distress is often the first warning sign.
- Ultrasound may support the diagnosis but should not delay surgery.
- Prompt laparotomy remains the cornerstone of management.

**References :**

1. American College of Obstetricians and Gynecologists. Vaginal Birth After Cesarean Delivery. Practice Bulletin No. 205. Obstet Gynecol. 2019.
2. Hofmeyr GJ, Say L, Gulmezoglu AM. WHO systematic review of maternal mortality and morbidity: uterine rupture. Best Pract Res Clin Obstet Gynaecol. 2005;19(1):3–14.
3. Sun HD, Su WH, Chang WH, Wen L, Huang BS. Rupture of the pregnant unscarred uterus: a review. Taiwan J Obstet Gynecol. 2012;51(1):1–4.
4. Al-Zirqi I, Daltveit AK, Forsen L, Stray-Pedersen B, Vangen S. Risk factors for complete uterine rupture. Am J Obstet Gynecol. 2017;216(2):165.e1–165.e8.
5. Miller DA, Goodwin TM, Gherman RB, Paul RH. Intrapartum rupture of the unscarred uterus. Obstet Gynecol. 1997;89(5):671–673.
6. Revicky V, Mukhopadhyay S, Morris EP, et al. Previous uterine perforation and risk of uterine rupture in subsequent pregnancy. J Obstet Gynaecol. 2012;32(6):558–560.
7. Nahum GG, Pham KQ. Uterine rupture in pregnancy. Medscape Reference. Updated review.
8. Walsh CA, Baxi LV. Rupture of the primigravid uterus: a review of the literature. Obstet Gynecol Surv. 2007;62(5):327–334.
9. Conturso R, Redaelli M, Marini M, et al. Spontaneous fundal uterine rupture in pregnancy: case report and literature review. Case Rep Obstet Gynecol. 2021.
10. Matsuo K, Scannell CA, Eto T. Spontaneous rupture of the unscarred pregnant uterus in the fundal region. Arch Gynecol Obstet. 2009;280(1):151–155.